

REMARKS/ARGUMENTS

This amendment is in response to the Office Action mailed on March 6, 2003 wherein Claims 1-13 were rejected. Claims 1, 6, and 10 have been amended, and Claims 1-4, 6, and 8-12 remain pending.

Objections to the drawing

On page 2 of the Office Action, the Examiner objected to the drawings. Applicants have amended Figure 3 according to the Examiner's recommendations. Figures 4 and 5 do not require amendment. Arms signifies the amps route mean square value. The rms value of an electrical variable such as amps is also known as the effective value.

Claim Rejections Under 35 USC §112

On page 2 of the Office Action, the Examiner stated it is not clear how angle β is varied and determined after the initial assigned value of zero has been set. As is known in the art of electric motor vector control and illustrated in Figures 1 and 4 of the present invention, the switching patterns of a three phase power inverter are transformed into the d-q coordinate frame representing the spatial vector sum of the three phase voltage. To provide background for the Examiner, the goal of vector control is to provide independent control of the flux and torque producing elements in an AC motor. The phase currents are mapped as a vector into a two axis coordinate system (d-q), such that the motor current is broken down into a magnetizing component and a torque component, analogous to a DC motor.

Figure 1 of the present invention illustrates angle β . The transformation of at block 24 is executed as a function of the angle β made by the stator current I_s with the q-axis. The angle β is varied by control block 24 as any value in a computer program may be varied. For example, if a line has a function $y = mx + b$, the variable x may be varied. The specification on page 4 of the application clearly shows the functions:

$$i_q^* = I_s \cos\beta$$

$$i_d^* = I_s \sin\beta$$

Accordingly, the angle β may be varied to generate different values of I_q and I_d dependent on the requested torque, as would be done in a computer program.

Claim Rejections Under 35 USC §102 and 103

On page 3 of the Final Office Action, the Examiner rejected Claims 1, 2, and 3-13 under 35 USC §102(b) as being anticipated by Iijima et al. On page 4 of the Office Action, Claim 4 was rejected under 35 USC §103 as being unpatentable over Iijima et al. in view of Carpenter.

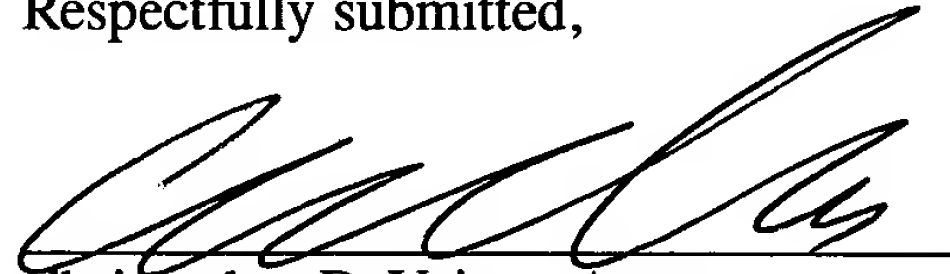
Applicants have amended the claims to better describe the present invention. Iijima et al. and Carpenter do not teach or suggest the present invention. The Examiner must explain how and why the claimed subject matter is rendered unpatentable over the prior art and point out where each of the specific limitations recited in the rejected claims is found in the prior art relied on. If the Examiner relies on personal knowledge that the apparatus of the present invention is obvious, Applicants respectfully request support for this assertion in the form of an affidavit that shall be subject to contradiction or explanation by the affidavits of the Applicants and other persons under 37 CFR 1.104(d)(2).

Conclusion

The entire Office Action dated March 6, 2003 has been carefully reviewed, and this response is submitted as being fully responsive thereto. In view of the preceding remarks, Applicants respectfully submit that Claims 1-4, 6, and 8-12 remain pending are in condition for allowance and respectfully request such action at the Examiner's earliest convenience. If the Examiner believes that personal contact would be advantageous to the disposition of this case, he is requested to call the undersigned at his earliest convenience.

Please charge any fees which may be due to Deposit Account No. 07-0960.

Respectfully submitted,



Christopher DeVries - Attorney

Reg. No. 44,654

Telephone: 313-665-4969

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